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PROGRAMMED INTRODUCTION TO ARABIC SCRIPT AND PHONOLOGY.

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THE PRESENT PROGRESS REPORT DESCRIBES INSTRUCTIONAL MATERIALS FOR THE TEACHING OF ARABIC WRITING AND PHONOLOGY, BASED ON THE RESULTS OF (1) A CONTRASTIVE ANALYSIS OF THE PHONOLOGIES OF AMERICAN ENGLISH AND MODERN LITERARY ARABIC, (2) AN ANALYSIS OF MODERN LITERARY ARABIC WRITING, AND (3) A WORD STUDY OF 11 ELEMENTARY ARABIC TEXTBOOKS. (FOR A PREVIOUS REPORT ON THIS PROJECT AND OTHERS IN THE SAME RESEARCH CONTRACT, SEE ED 010 442.) THESE MATERIALS UTILIZE THE PRINCIPLES AND TECHNIQUES OF PROGRAMED LEARNING, AND HAVE BEEN TESTED IN THE FIRST-YEAR ARABIC COURSE AT THE UNIVERSITY OF MICHIGAN. THE SAMPLE UNITS IN THIS REPORT INCLUDE--(1) A PRONUNCIATION DRILLS UNIT, (2) A READING UNIT, (3) A WRITING UNIT, AND (4) A TESTING UNIT TO BE USED IN THE LANGUAGE LABORATORY. A DISTINCTIVE FEATURE OF THESE MATERIALS IS THE "VERTICAL SEQUENCING," WHICH PRESENTS THE FOUR LANGUAGE LEARNING SKILLS (LISTENING, SPEAKING, READING, AND WRITING) IN COMBINATION FOR REINFORCEMENT, RATHER THAN IN A "HORIZONTAL SEQUENCING," WHICH ALLOWS FOR THE PRESENTATION OF A NEW SKILL ONLY UPON THE MASTERY OF A PREVIOUS SKILL. THIS REPORT APPEARS IN "STUDIES IN LANGUAGE AND LANGUAGE BEHAVIOR, PROGRESS REPORT V," SEPTEMBER 1, 1967, PUBLISHED BY THE CENTER FOR RESEARCH ON LANGUAGE AND LANGUAGE BEHAVIOR. (AMM)

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Programmed Introduction to Arabic Script and Phonology¹

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The major aspects of the research reported here were outlined in the first report on this project.² The objective in preparing the present report is to show progress to date. Based on the results of (a) contrastive analysis of the phonologies of American English (AE) and Modern Literary Arabic (MLA), and (b) analysis of the MLA writing system, and (c) word study of 11 elementary Arabic textbooks in this country, 3 sets of instructional materials including pronunciation, reading, and writing drills were prepared. The materials utilize the principles and techniques of programmed learning. They were tested in the first-year Arabic course at the University of Michigan, after which they were revised and made ready to be programmed on the Portable Laboratory System of Lab-Appleton-Century-Crofts.

In recent years, the application of audio-lingual methods to the teaching of MLA pronunciation, reading, and writing have been found more effective and interesting than the translation-grammar approach. On this assumption, we have done two linguistic studies: one on the phonologies of both AE and MLA, and the other on the MLA writing system. The results obtained from these studies formed the basis on which the three sets of teaching materials have been prepared and tested.

Although these instructional materials follow the usual sequence of teaching the four skills (listening, speaking, reading, and writing), they have a distinctive feature in the way they present these four skills to the learner. Whereas in the method formerly used, the four skills were introduced and practiced separately, i.e., each one following the other after the latter was wholly mastered, we have increased the pace by teaching all the skills combined at one time and bit by bit, rather than the whole. Our experience shows that in following this vertical sequence of teaching the four skills, the student learns faster and better than in the former case where the horizontal sequence is used. In the present technique, each of the four skills coordinates and reinforces the others. Furthermore, the phonemic transcription which has been found to be a burden on some students is by-passed altogether.

The following is a description of three sample units of instruction, illustrated with figures and representing the instructional materials.

Figure 1 presents a pronunciation unit in which the four Arabic emphatic consonants س , د , ط , ظ

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are introduced and drilled. This unit starts with a phonetic description of the sounds in question. The four emphatic consonants are contrasted with their non-emphatic counterparts as well as with similar English consonants. In addition, devices which enable the student to recognize and distinguish differences between emphatic and non-emphatic consonants and to produce the emphatic consonants satisfactorily are also provided.

Pronunciation drill 1 follows. Here, the ص س sound is introduced and drilled in contrast to its counterpart س ص in minimal pairs, first using nonsense syllables (Fig. 1 [A]) and later meaningful words [B, C, D]. To enable the student to recognize the quality of the emphatic consonants as affected by adjacent vowels as well as by the position of the consonants themselves in words the minimal pairs were arranged in three columns: Column [B] includes pairs where the letter ص س and its counterpart س ص occur initially, first followed by short vowels: fatha (/), damma (°) and kasra (,), then by long vowels: ?alif (١), waaw (٩), and yaa? (٢) where possible. These minimal pairs are listed alphabetically and according to the number of syllables, starting with monosyllabic pairs, then disyllabics and so on. Columns C and D follow the same procedure except that the ص س س ص sounds occur in medial position in the minimal pairs of Column C and in final position in those of Column D. (Notice that Arabic is written from right to left.)

The class practices the drill under the control of the teacher, following the normal procedure of repetition, perception, and production. During classroom practice, the students do not see the written version of the drill. Later, after they have practiced reading and writing the emphatic consonants in all their forms, the written sheet is given for review.

Pronunciation drills 2, 3 and 4 introduce and drill the other three emphatic consonants ض ط ظ in sequential order, following the same procedure as described above.

This is followed by a reading unit (see Figure 2). Part A of this unit presents and drills the four letters ص س ض ط and ظ which all have the component و in common. The main objectives of this part as well as the parts that follow are (a) to enable the student to recognize the four emphatic consonants in all their forms; (b) to produce their sounds satisfactorily; and (c) to remember their shapes as well.

Part B reviews all the letters which the student is familiar with, plus the new four letters which appear enclosed in a box. The letters are arranged in alphabetical order.

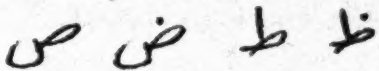
In order to enable the student to recognize words including the new letters, examples in words containing the independent form of these letters follow in part C. Similar examples arranged **conventionally** are added in part D for further drill in recognition and production of Arabic words containing the letters under study. Part E is a review of the new consonants and their counterparts.

Sections 2, 3 and 4 are designed and organized along the same lines as Section 1, except for the alphabetical list of letters as in Part B, Section 1. Each of these parts introduces and drills another form of the new letters, reviews the contents of the preceding part(s) and gives further examples in words.

At the end of the reading unit, there are two review drills based on the materials of the whole unit: (a) reading phrases and sentences (see Part A, Section 5), and (b) expansion reading drill (see Part B, Section 5).

The pronunciation and reading units are accompanied by a writing unit (see Figure 3). Part A starts with the independent forms of the four consonants. The student first identifies these letters by sound before writing them to enforce correct pronunciation and recognition. Then, the student is asked to follow the directions given in the model, which enables him to recognize the mechanical movements involved in writing these letters. After that, the student starts practicing the letters, tracing over dotted lines, completing partial forms and later making letters independently.

Part B presents a pattern containing the independent forms of the letters in words. The student is asked to read the words of the patterns aloud and to observe relationships of size and space of both letters and words, as well as differences between connectors and non-connectors. Here, the student is provided with the starting points of syllables and non-connected letters to enable him to produce these relationships and differences satisfactorily. These cues fade gradually until the student finds himself, at the end, writing the whole word or phrase with only one cue given--the starting point of the word or phrase.

The same procedure is repeated in the parts that follow, so that, by the end of this writing unit, the student will have the ability to write words, phrases and sentences including the four letters  in all positions.

In order to see how much the student has learned from the preceding three units, a fourth testing unit is added to complete the sequence (see Figure 4). This testing unit is given to the student as an assignment to be done in the language laboratory.

Part A, in both forms given, tests the sounds already introduced and drilled in Figure 1. The student listens to words including the emphatic sounds or their emphatic counterparts; then, he writes the proper sound he hears in the appropriate column.

Part B tests reading comprehension. The student first listens to taped words and phrases including the emphatic sounds and their counterparts; then he identifies what he has heard by circling the correct word, phrase or the check mark given on the answer sheet.

Part C tests production (in the form of writing) of all the forms of the four emphatics. The student writes down the words and phrases dictated on tape, sounding out each word or phrase while doing so.

Footnotes

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²See Contrastive Analysis of the phonology of American English and modern literary Arabic in *Studies in language and language behavior, IV*. Ann Arbor: Center for Research on Language and Language Behavior, University of Michigan, 1967. Pp. 218-231.

Figure Captions

Fig. 1. An example of a pronunciation drill oriented to the writing system.

Fig. 2. An example of a reading drill containing the same sounds indicated in Fig. 1.

Fig. 3. An illustration of a writing drill, including the same sounds as in Figs. 1 and 2, following the pronunciation and reading drills in those figures.

Fig. 4. An illustration of a test, based on the drills indicated above, which the students do in the language laboratory.

Figure 1
Pronunciation Drill - 1

[A]

ص	ك
ص	ك
ص	ك
ص	ك
صا	كا
صو	كو
صي	كي

[D]

[C]

[B]

خمس - خمس	أصفر - أصفر	منب - منب
موس - موس	مسرور - مسرور	منح - منح
عيس - عيس	أخض - أخض	منذ - منذ
خرس - خرس	تخض - تخض	منفع - منفع
ومتوس - ومتوس	يضرع - يضرع	منيف - منيف
	ضرل - ضرل	منير - منير
	يصد - يصد	منم - منم
	يضر - يضر	منرة - منرة
	نير - نير	منعداء - منعداء
	نصب - نصب	منر - منر
	حصان - حصان	منلف - منلف
	نصار - نصار	منف - منف
	نصوع - نصوع	ناع - ناع
	نصوم - نصوم	ناد - ناد
	نصير - نصير	نورة - نورة
	نصير - نصير	نوري - نوري
	نصير - نصير	نير - نير
	نصير - نصير	نين - نين

Pronunciation Drill - 2

ض
ض
ض
ض
ض
ض
ض

د
د
د
د
د
د
د

[A]

[D]

[C]

[B]

حَدَّ - حَضَّ
عَدَّ - عَضَّ
بَعْدَ - بَعْضَ
أَحْمَدَ - أَحْمَضَ
عَدَدَ - عَضَضَ
عَدَّادَ - عَضَّاضَ
رُدُودَ - رُضُوضَ
حَدِيدَ - حَضِيزَ
عَدِيدَ - عَضِيزَ

أَدْنَى - أَضْنَى
حَذَر - حَضَر
عَذَل - عَضَل
وَدَعَ - وَضَعَ
يَذَر - يَضَر
يَذَل - يَضَل
قَدِمَ - قَضِمَ
قَارِمَ - قَاضِمَ
مُدَّرَ - مُضَرَّ
أَعْدَاءَ - أَعْضَاءَ
بِيدَاءَ - بَيْضَاءَ
مَدَى - مَضَى
مَدَارَ - مَضَارَ
يَدُومَ - يَضُومَ
مَعْدُودَ - مَعْضُوضَ
مُدِيرَ - مُضِيرَ
وَدِيعَ - وَضِيعَ

دَبَّ - ضَبَّ
دَجَّ - ضَجَّ
دَرَّ - ضَرَّ
دَرْبَ - ضَرْبَ
دَلَّ - ضَلَّ
دَمَّ - ضَمَّ
دَلِيلَ - ضَلِيلَ
دُرَّ - ضُرَّ
دُرَّةَ - ضُرَّةَ
دَارَ - ضَارَ
دَالَ - ضَالَ
دَامَ - ضَامَ

طوبى

$\frac{y}{y'}$

[C]

تَب - طَب
 تَل - طَل
 تَم - طَم
 تَرَف - طَرَف
 تَلَا - طَلَا
 تَيَّار - طَيَّار
 تَبَعَ - طَبَعَ
 تَلَى - طَلَى
 تَرَبَّ - طَرَبَّ
 تَرَجَّ - طَرَجَّ
 تَلَاوَةٌ - طَلَاوَةٌ
 تَلَال - طَلَال
 تَاب - طَاب
 تَابَعَ - طَابَعَ
 تَوَلَّ - طَوَّلَ
 تَيْن - طَيْن
 تَيْنَةٌ - طَيْنَةٌ

يَسْبَعُ - يَطْبَعُ
يَسْلُو - يَطْلُو
يَسْرُ - يَطْرُ
يَعْتَبُ - عَطَبُ
فَسِرَ - فَطِرَ
يَسِلُ - يَطِلُ
رَبَّ - رَطَبُ
فَسَّرَ - فَطَّرَ
فَاسَرَ - فَاطَرَ
فَاسَنَ - فَاطَنَ
أَمَارَ - أُمَارَ
يُنَاحُ - يُطَاحُ
يُسَوِّرُ - يُطَوِّرُ
فُسَوِّرُ - فُطَوِّرُ
يُسَبِّحُ - يُطَبِّحُ

بَت - بَط
سَبَت - سَبَط
مَسَّت - مَسَط
ثَبَّت - ثَبَط
رَبَّت - رَبَط
نَبَّت - نَبَط
مَات - مَات
قَوَّت - قَوَط
نَشَبَتْ - نَشَطَط

Pronunciation Drill - 4

ظ
ظَا
ظُ
ظَا
ظُو
ظِي

ذ
ذَا
ذُ
ذَا
ذُو
ذِي

[A]

[D]

فَذَّ - فُظَّ

[C]

حَذَّرَ - حَظَرَ
نَذَّرَ - نَظَرَ
تَذَلَّلَ - تَظَلَّلَ
يَنْذِرُ - يَنْظُرُ
حُذِيَ - حُظِيَ
لُذِيَ - لُظِيَ
نَاذِرٌ - نَاطِرٌ
شُذِيَّةٌ - شُظِيَّةٌ
مَنْذُورٌ - مَنْظُورٌ
نَذِيرٌ - نَظِيرٌ

[B]

ذَلَّ - ظَلَّ
ذُرِفَ - ظُرِفَ
ذُخِرَ - ظُفِرَ
ذَلَّلَ - ظَلَّلَ
ذَالٌ - ظَالٌ

Figure 2
Section 1

ص ض ط ظ

[A]

ا ب ت ث د ذ ر ز س ش
ص ض ط ظ ف و ن و ي

[B]

س : باس د : فاد ت : قوت ن : قوت
ص : باص ض : فاض ط : قوط ظ : بوظ

[C]

باص بوض برص
فاض باض فرض
قوط فارط سراط
بوظ فاظ مناظ

[D]

بشرط قرض نافذ بياض
قراة قنوط قرض قروض
تنوط بوض فانوس ثبوط

[E]

Section 2

ص ض ط ظ

[A]

ص : باص ض : فاض ط : قوط ظ : بوظ
ص : صار ض : صاف ط : طار ظ : ظاد

[B]

صار صور قاصي
صاف باضو قاضي
طار محبوب ماضي
ظاد ناظور ظاظمي

[C]

صو ص	باط	ناظور	باصي
راضي	طابور	ظان	ضارب
طارق	طود	صادق	فاطي
صابون	طريق	شروط	صديق

[D]

Section 3

ص ح ط ظ

[A]

ص : باص	ض : فاض	ط : قوط	ظ : بوظ
ح : صار	خ : ضاف	ط : طار	ظ : ظاد
ع : قصر	غ : نضر	ط : بطن	ظ : نظر

[B]

قصر	قصور	قصير
نضر	نضور	نضير
بطن	بطون	بطين
نظر	نظور	نظير

[C]

صابر	نطار	نصار	نضارب
نطوف	صادق	قطور	نضرب
قط	نظر	نصاب	نطاق

[D]

Section 4

ص ح ط ظ

[A]

ص : باص	ض : فاض	ط : قوط	ظ : بوظ
ح : صار	خ : ضاف	ط : طار	ظ : ظاد
ع : قصر	غ : نضر	ط : بطن	ظ : نظر
ص : نص	ض : بض	ط : بط	ظ : فظ

[B]

نَص	قَص	رَبَص
بَص	رَبَص	نَا بَص
بَط	نَط	ضَابَط
فُظ	رَبَط	نَا قُظ

[C]

قَابِض	نَطَامِس	مُطَوِّر	فُض
قُضِضَ	نُصَادِرُ	نُطُوف	وَطُوط
فَقُط	رَابِض	نُظَارِف	بُظ
نُؤَافِذ	نُقُط	خُرِير	قُطُوف
نَا طُوه	فَاضُت	قُرِيبُ	رُطِب

[D]

Section 5

عِبَارَاتٌ وَجُمَلٌ

بَاطٌ رَاضِي ، قَصْرٌ صَبَاح ، قَاضِي صَبِيحَا
 صَدَفٌ طَارِقٌ ، نَظَرٌ نَاصِرٌ ، طَارٌ وَطُوط .
 يُطَارِدُ صَوْصٌ ، نَصِيرٌ طُرُوبٌ ، يَفْطُرُ صَبِيرِي
 نَضَارِبٌ رَاضِي وَصَادِرَةٌ ، نَضَارِفٌ صَابِرٌ وَضِيرَار
 يَنْظُرُ فِي نَاظُور ، قُصْدٌ قِطَارٌ طَنْطَا

[A]

طَارٌ وَطُوط
 طَارٌ وَطُوط فِي قَصْر
 طَارٌ وَطُوط فِي قَصْرِ صَبَاح

[B]

نَظَرُ صَادِقٍ
 نَظَرُ صَادِقٍ فِي نَاطُورٍ
 نَظَرُ صَادِقٍ فِي نَاطُورٍ طَارِقٍ

فَضْلُ ظَاهِرٍ
 قَصَصُ ظَاهِرٍ وَصَدِيقِهِ
 قَصَصُ ظَاهِرٍ وَصَدِيقِهِ ضِرَارٍ

Part A

ظ ظ ض ض

ظ ظ ظ ظ ظ ظ ظ ظ

ظ ظ ظ ظ ظ ظ ظ ظ

ظ ظ ظ ظ ظ ظ ظ ظ

ظ ظ ظ ظ ظ ظ ظ ظ

ظ ظ ظ ظ ظ ظ ظ ظ

ظ ظ ظ ظ ظ ظ ظ ظ

ظ ظ ظ ظ ظ ظ ظ ظ

ض ض ض ض ض ض ض ض

ب ب ب ب ب ب ب ب

ا ا ا ب ب ب ب ب

ب ب ب ب ب ب ب ب

ظ ظ ظ ا ا ظ ب ب ظ

ظ ظ ظ ا ا ظ ب ب ظ

باص برص باض برط قوط بوظ

.

z b i e

u u u u u u u u

o o o o o o o o

a a a a a a a a

i i i i i i i i

e e i o o i o o i

i i i i i i i i

ب ب ب ب ب ب ب

ب ب ب ب ب ب ب

ظ ظ ظ ظ ظ ظ ظ

ظ ظ ظ ظ ظ ظ ظ

Part B

صار راضي صديق طابور ناظر طود

.

.

.

b b ie ie

ie ie ie ie ie ie ie ie

ie ie ie ie ie ie ie ie

ie ie ie ie ie ie ie ie

ie ie ie ie ie ie ie ie

ie ie ie ie ie ie ie ie

ie ie ie ie ie ie ie ie

ie ie ie ie ie ie ie ie

ظ ظ ظ ظ ظ ظ ظ ظ

ظ ظ ظ ظ ظ ظ ظ ظ

قصر نصائب نضور تضروب نظاوي فطوي

ض ض ض ض ض ض ض ض

ض ض ض ض ض ض ض ض

ض ض ض ض ض ض ض ض

ن ن ن ن ن ن ن ن ن ن ن ن ن ن ن ن

ن ن ن ن ن ن ن ن ن ن ن ن ن ن ن ن

ن ن ن ن ن ن ن ن ن ن ن ن ن ن ن ن

ن ن ن ن ن ن ن ن ن ن ن ن ن ن ن ن

ن ن ن ن ن ن ن ن ن ن ن ن ن ن ن ن

ن ن ن ن ن ن ن ن ن ن ن ن ن ن ن ن

ن ن ن ن ن ن ن ن ن ن ن ن ن ن ن ن

سأط راضي قصر صبري قطار طنطا ينظر في ناظور

Figure 4
Part A

Listen to the sounds ض , د , ص , ر , س
in the following words, then write the appropriate letter in
the appropriate column below:

ض	د	ص	ر	س
				1
				2
				3
				4
				5
				6
				7
				8
				9
				10
				11
				12
				13
				14
				15

Part B

I am going to read six words. If what is read is the same as the one written, circle the latter; if it is not the same, circle the check mark on the left.

Test items recorded on tape:

صووص	X	بصووص	. ١
صادو	X	صادو	. ٢
etc.	X	ضرار	. ٣
	X	صدو	. ٤
	X	ناصر	. ٥
	X	ضناري	. ٦

Now circle the word I say.

صد يو راضي	. ٧
صادو وضرار	. ٨
صووص ضرار	. ٩
صادو وناصر	. ١٠
صد يو صادو	. ١١
صا من ضرار	. ١٢

Now indicate whether the phrase read is the same as the phrase written or not. If it is the same, circle the latter; if it is not the same, circle the check mark.

X	صووص ضرار	. ١٣
X	صادو وضرار	. ١٤
X	صد يو راضي	. ١٥
X	صد يو ناصر	. ١٦
X	صووص ناصر	. ١٧
X	صووص ضرار	. ١٨ 465

Part C

Listen carefully to the following words and phrases, then write them in the space below.

Figure 4 (continued)

Part A

Listen to the sounds ط , ذ , ظ , ت
in the following words, then write the appropriate letter
you hear in the appropriate column below.

ظ	ذ	ط	ت	
				1
				2
				3
				4
				5
				6
				7
				8
				9
				10
				11
				12
				13
				14
				15
				16

Part B

I am going to read a word or a phrase. If it is the same as the one written, circle the latter; if it is not the same, circle the check mark on the left.

X	طريو	1
X	ظفر	2
X	طريو	3
X	ناظور	4
X	طفور	5
X	في	6
X	قطار	7

Now circle the word I say.

	فطور طارو	8
	في ناظور طارو	9
	في طريو ظافر	10
	فطور ظافر	11
	في ناظور ظافر	12
	في ططايو قطار	13
	في طريو ظافر	14

Now indicate whether the phrase read corresponds with the phrase written or not. If it corresponds with it, circle the phrase written; if it does not, circle the check mark.

X	فطور طارو	15
X	في ناظور طارو	16
X	في طريو ظافر	17
X	فطور ظافر	18
X	في ناظور ظافر	19
X	في طريو قطار	20

Part C

Listen carefully to the following phrases, then write them in the space below. Each phrase will be read twice.